

# The Great Lakes Fisheries Leadership Institute (GLFLI): An Extension Program's Impacts in Relation to Regional Sea Grant and Michigan Participants' Expected Learning Outcomes



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## Introduction

Fisheries management institutions today face the challenge that stakeholders often lack appropriate information to understand the larger impacts of their decisions in relation to achieving sustainable Great Lakes ecosystems and fisheries (Sturtevant et al. 2002). In 2003-04, the Great Lakes Sea Grant Network piloted the Great Lakes Fisheries Leadership Institute (GLFLI), an adult fisheries extension education program, to address this challenge through development of "an educated, motivated and participating citizen" (Sturtevant et al. 2002).

The GLFLI program provided a standardized curriculum, with two general levels of training, including: (1) a statewide session within each state, and (2) regional, lakewide sessions for each of the Great Lakes. Lakewide sessions targeted 10 fisheries science ("fish" & "habitat") outcomes reflecting fisheries history, management, biology, ecology, habitats, and related issues. Statewide sessions focused on 16 leadership ("people") outcomes such as networking, understanding diverse stakeholders (and related issues), institutional arrangements, and other leadership topics. Participants were then expected to select and carry out fisheries-related service projects.

Education efforts to change learner behavior involve multiple variables, including: (1) entry level awareness, positive attitudes, and basic knowledge, (2) ownership and personal investment, and (3) empowerment through comfort, skills, and resources necessary for the learner to take action (Hungerford and Volk 1990). Learners might then choose to carry out multiple types of environmental stewardship activities (Hungerford and Peyton 1980). Also, adults are self-motivated learners, likely to enter into a program with prior knowledge and experience, seeking information specific to their own current situation and needs (Levine 2000). Schrock et al. (2000) describe multiple motivational factors that compel adults to voluntarily participate in extension education programs.

## Evaluation Purpose



Figure 1: Bennett's (1978, Miller et al. 2001) Model for Evaluating Extension Programs

The National Sea Grant College Program promotes evaluation of extension programs, and GLFLI program planning proposals state the intent to, "assess the effectiveness of [program] delivery." Bennett's (1978) hierarchical program evaluation pyramid is often adopted by Sea Grant to determine effectiveness and impacts of extension programs (Fig. 1, from Miller et al. 2001).

Adopting Bennett's (1978, Miller et al. 2000) evaluation model as a foundation and framework, this research utilizes qualitative and quantitative evaluation methods to describe:

- Program impacts respective to intended Sea Grant GLFLI outcomes, as well as expectations of Michigan program participants
- Motivations, values, expectations, and reactions of 22 Michigan participants' to their GLFLI experience

## Methods

GLFLI planning and promotional documents were used to describe intended program outcomes. Curriculum and training agendas were reviewed to describe the actual delivery of Michigan GLFLI components. Completed applications, pre- and post-institute surveys, and participant writing activities were used to describe Michigan participants (n=22) expectations, values and intended application of their GLFLI experience.

Quantitative data were analyzed using SPSS 10.0.7, social statistics software for Windows. Michigan participants (n=22, 100% response) were compared after matching pre-and post-institute responses for each individual.

A small sample size justified using non-parametric statistics (Wilcoxon signed-rank test) to determine significant changes in participant responses. Qualitative data were coded, categorized, and analyzed for similarities, patterns, and examples of experiences to describe responses of Michigan GLFLI participants (Punch 1998).



## Project Inputs and Activities

### 1. Program Resources and Inputs:

- ✓ GLFLI curriculum (14 standardized components)
  - 8 core modules, 6 supplemental resources, plus additional resources provided by program partners and instructors
- ✓ Diversity of instructors exposed to Michigan participants:
  - 20 Great Lakes Sea Grant staff (5 state programs)
  - 36 non-Sea Grant experts (22 agencies, organizations, or institutions)

### 2. Program Activities:

- ✓ 2 levels of training sessions conducted (statewide & lakewide).  
Content included:
  - Curriculum-based presentations
  - Networking opportunities
  - Facilitated discussions
  - Experiential learning (Field trips, demonstrations, etc.)
- ✓ 1 statewide and 5 lakewide (2 Huron, 1 Michigan, 1 Erie, 1 Superior) sessions available to Michigan participants

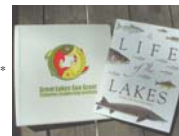


### 3. Michigan Participation:

- ✓ 4 lake groups (Lakes Huron, Michigan, Superior, and Erie)
- ✓ 22 participants
- ✓ 43 organizations represented, including: environmental organizations, sportfishing groups, commercial fishing interests, tribes, science writers, etc.
- ✓ Demographics:
  - Males (86.4%) : Females (13.6%)
  - Median Age - 46.5 years
  - Education: High School degree or less (9%), Vocational/trade school/some college (22.7%), College graduate (BS, MS, PhD, etc.) (68.2%)

### 4. Michigan Participant Reactions:

- ✓ Learning Expectations:
  - 72.7% - learned or gained what had originally hoped
  - 81.8% - learned or gained something new/unanticipated
- ✓ Programming Expectations:
  - 77.3% - curriculum and related lessons met expectations\*
  - 54.5% - experiential opportunities met expectations\*\*
  - 54.5% - opportunities to practice knowledge/skills\*\*
  - \*all received same curriculum; \*\*varied by lake group
- ✓ Overall Reaction to GLFLI:
  - 81.8% - considered GLFLI experience to be beneficial



## Outcomes and Impacts

### 5. Changes in Knowledge, Attitudes, and Skills:

- ✓ Motivations for stakeholder participation:  
Primary: (1) Action Skills (education, advocacy, habitat)  
(2) Knowledge/Understanding (fish science, management)  
Secondary: (3) Social Factors (networking)
- ✓ Actual Program Outcomes valued by participants:  
Primarily: Social (networking)  
Secondarily: Knowledge/Understanding (fish science, management)  
Least recognized: Action Skills (education, advocacy, habitat)
- ✓ Participants entered with high evaluations of their own knowledge and skills.
- ✓ Statistically significant gains for all outcomes, except fish consumption advisories (25 of 26) - this includes leadership skill areas

### 6. Intended Practices or Participant Use:

- ✓ Participant service projects reflected actions relating to:
  - education/information sharing (59.1%)
  - habitat monitoring/improvement (50%)
  - advocacy/policy/legislative (36.4%)
  - (63.6% indicated multiple "types" of service projects)
- ✓ Application of participant learning most likely to occur within:
  - (1) local geographic community (68.2%)
  - (2) specific fisheries organization (50%)
- ✓ Statewide, lakewide, basin-wide leadership also likely, but not as participant priorities
- ✓ GLFLI positively influenced attitudes, but generally did not demonstrate statistically significant changes in:
  - types of intended service projects, or
  - intended "community" of work



### 7. Social, Economic, and Environmental Outcomes:

- ✓ Regional GLFLI program goal to facilitate changes in citizen participants' fisheries leadership activities
- ✓ Intended GLFLI benefits or "outcomes" to be realized:
  - through service projects conducted
  - increased involvement in agency advisory groups
  - to the fishery and fishery stakeholders

## Lessons Learned

### Programming:

- ✓ Michigan programming successfully delivered coverage for all identified learning outcomes through training curriculum modules, as well as lakewide and/or statewide training sessions.
- ✓ Participants indicated positive gains in all but one program area, with favorable response to the curriculum, networking opportunities, and limited experiential opportunities.
- ✓ Overall, participants believed their learning experience to be beneficial; most (72.7%) gaining what they had hoped and more (81.8%) realizing unanticipated gain beyond original expectation.
- ✓ GLFLI required significant investment of Sea Grant resources, but with likely high return on investment through intended activities of participants completing the course.

### Participant Involvement:

- ✓ Recruiting a diverse set of participants also resulted in diverse values and program expectations, as well as learners entering with diverse backgrounds and fisheries experience.
- ✓ Motivational priorities differed from actual program outcomes most noted by participants.
- ✓ Participant leadership activities were somewhat pre-determined (i.e., types of service projects, communities of work), though the GLFLI may have expanded and enhanced participant attitudes.
- ✓ Role for GLFLI: Guiding participant actions through understanding their needs and intentions.

### Evaluating Extension Programs:

- ✓ Bennett (1978, Miller et al. 2001) provides an evaluation model valuable for critiquing extension programs on multiple levels, considering both program goals and participant values and needs.
- ✓ Complementary qualitative and quantitative methods and multiple sources of data add depth to program evaluation without significant impediments to program implementation.
- ✓ Better understanding participant background, expectations, and intentions are useful in identifying program values, gaps in learning, and opportunities for future programming.

### Program Values and Opportunity:

- ✓ Primary value of the GLFLI as a network-building tool
- ✓ Successful in building foundational awareness, knowledge, and understanding
- ✓ Opportunity to further develop action skill sets among participants

## A Basis for Future Evaluation:

Future mid- and long-term program evaluation efforts are necessary to provide insight into:  
- Actual participant practices and use of their GLFLI experience  
- Impacts and changes resulting from service projects and fisheries leadership activities of those trained  
- Long-term benefits to stakeholders, both participants and institutions who work with them

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Other GLFLI program partners include:

The Great Lakes Fishery Commission  
U. S. Fish and Wildlife Service  
U. S. Geological Survey  
Great Lakes Environmental Research Laboratory  
State departments of natural resources  
State environmental protection agencies



Great Lakes Sea Grant  
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